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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/600,826

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Sawako Usuki

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7590

12/15/2004

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EXAMINER

SAN MARTIN, EDGARDO

ART UNIT

PAPER NUMBER

2837

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/600,826

Applicant(s)

USUKI ET AL.

Examiner

Edgardo San Martin

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,7-20 and 22-31 is/are rejected.
- 7) ☒ Claim(s) 2,6 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/23/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because the numbers in the abstract should be within parenthesis or deleted. Correction is required. See MPEP § 608.01(b).

Claim Objections

2. Claims 15, 17, 18, 28, 30 and 31 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The Examiner considers that the subject matter of the abovementioned claims is redundant because the previous corresponding claims already describe an electronic device.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 16, 17, 29 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 16 and 29 recite the limitation "said at least two magnets" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1, 3 – 5, 7 – 9, 12, 13, 18 – 20, 25, 26 and 31 are rejected under 35 U.S.C. 102(a) as being anticipated by Nakaso (US 2002/0039430).

With respect to claims 1, 19 and 20, Nakaso teaches a loudspeaker diaphragm (Fig.1, Item 21) having a portion affixed with a coil (Fig.1, Item 25) comprising an edge portion (Fig.1, Item 22) located outside of the portion affixed with the coil; and a center portion (Fig.1, Item 29) located inside of the portion affixed with the coil; wherein the center portion is provided with a rib (Fig.1, Item 29a).

With respect to claims 3 and 4, Nakaso teach wherein the coil is shaped so as to extend along a first direction, and a direction in which the rib is provided includes a component of a second direction perpendicular to the first direction (Figs.1 and 2).

With respect to claim 5, Nakaso teaches that the prior art disclose wherein a plurality of the ribs are provided to form a lattice shape at a predetermined angle with respect to the first direction (Fig.5).

With respect to claims 7 and 8, Nakaso teaches wherein the rib is formed integrally with or attached to the center portion (Fig.1).

With respect to claims 9 and 20, Nakaso teach wherein the coil is shaped so as to extend along a first direction, the edge portion is shaped so as to have an elasticity in

Art Unit: 2837

the first direction equal to an elasticity in a second direction perpendicular to the first direction, and the edge portion is shaped so as to extend along the first direction (Figs.1 and 2; ¶ [0016] – [0018]).

With respect to claims 12 and 25, Nakaso teaches wherein at least part of a portion along an outer rim of the coil on the edge portion protrudes from a side of the portion affixed with the coil (Fig.1).

With respect to claims 13, 18, 26 and 31, Nakaso teaches a housing supporting the loudspeaker diaphragm; a voice coil affixed to the loudspeaker diaphragm; and a magnetic circuit (Figs.1 and 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 10, 11, 14 – 17, 23, 24 and 27 – 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakaso (US 2002/0039430) in view of Thigpen (US 6,104,825).

With respect to claims 10 and 23, Nakaso teach the limitations discussed in a previous rejection, but fail to disclose wherein the coil is a printing voice coil formed integrally with the loudspeaker diaphragm.

Nevertheless, Thigpen teaches a loudspeaker system comprising a coil being a printing voice coil (Fig.2, Item 40) formed integrally with the loudspeaker diaphragm (Fig.2, Item 38).

It would have been obvious to a person with ordinary skill in the art at the time of the invention was made to employ the Thigpen printing voice coil with the Nakaso design because the use of a printed voice coil would make the whole diaphragm-voice-coil structure slimmer, optimizing the space used making it usable for smaller applications.

With respect to claims 11 and 24, Thigpen teaches wherein the loudspeaker diaphragm is molded after being formed integrally with the coil affixed thereto (Fig.4; Col.7, Lines 13 – 46).

With respect to claims 14 – 17 and 27 – 30, Thigpen teaches wherein the magnetic circuit includes at least two magnets (Fig.3, Item 28) placed at both sides with respect to a vibrating direction of the loudspeaker diaphragm so as to sandwich the voice coil (Fig.3, Item 40), and wherein the at least two magnets are placed so as to be magnetized in directions opposite to each other with respect to a vibrating direction of the loudspeaker diaphragm (Fig.3).

6. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakaso (US 2002/0039430) in view of Jasinski (US 4,433,214).

Nakaso teach the limitations discussed in a previous rejection, but fail to disclose wherein portions on the edge portion, which are located on both sides of the coil with

Art Unit: 2837

respect to a center axis of the coil in the first direction are each provided with a rib extending approximately in parallel with the second direction.

On the other hand, Jasinski teaches portions on the edge portion, which are located along the periphery of the loudspeaker, each provided with a rib (Fig.2A, Item 14) extending approximately toward the center of the diaphragm.

It would have been obvious to a person with ordinary skill in the art at the time of the invention was made to employ the Jasinski configuration with the Naklaso design because the ribs on the edge would relieve stresses created which are perpendicular to the radii of the edge, this will leave only bending-type stresses remaining, which lie along the radii of the edge.

Allowable Subject Matter

7. Claims 2, 6 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion


8. The attached hereto PTO Form 892 lists prior art made of record that the Examiner considered it pertinent to applicant's disclosure.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edgardo San Martin whose telephone number is (571) 272-2074. The examiner can normally be reached on 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on (571) 272-2107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Edgardo San Martín
Patent Examiner
Art Unit 2837
Class 181
December 13, 2004